

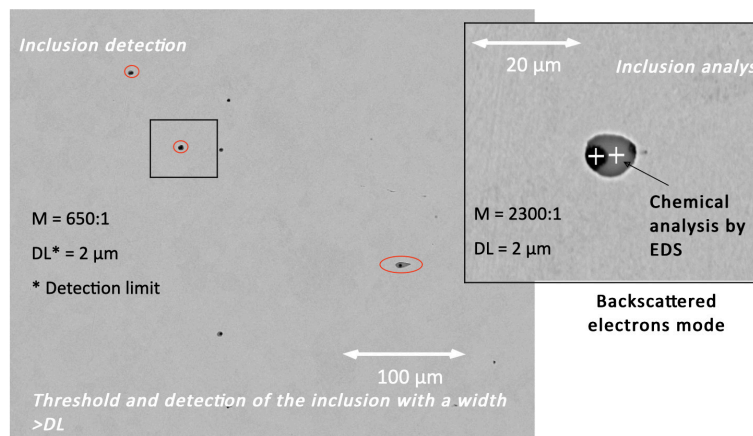
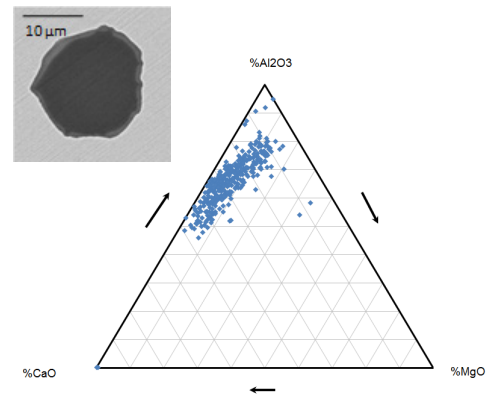
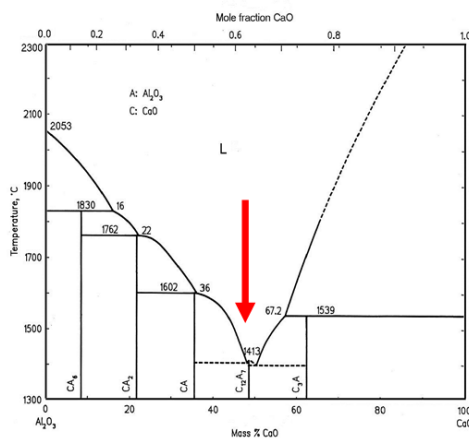
Affival can enhance your process performance by applying the technological innovation of cored wire across a wide range of metallurgical needs. Our world-class engineers and scientists provide steelmakers with access to unsurpassed expertise in primary and secondary metallurgy. As a result, our customers achieve consistent metallurgical treatment while decreasing cored-wire consumption.

## Application

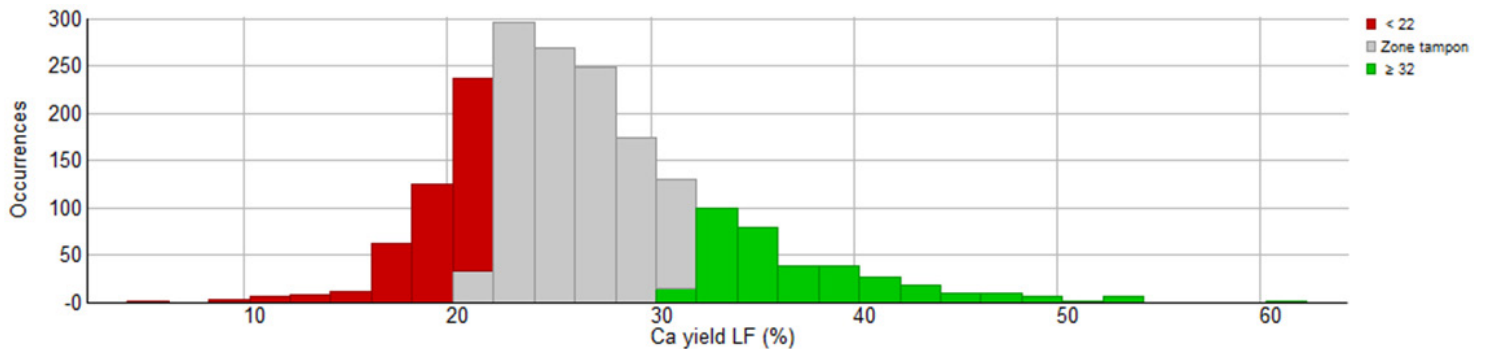
- Engineering support in secondary steelmaking for cored-wire application
- Technical support in secondary metallurgy assistance for Ca treatment, trimming, and other treatment additions
- Technical support in raw materials selection and control

## Description

- Statistical analysis of the secondary metallurgy process databases
- Chemical equilibrium simulation (dedicated thermodynamics software)
- Chemical & physical analysis
- Automatic SEM analysis of micro-inclusions in steel



# TECHNICAL & METALLURGICAL Assistance



**A statistical analysis of the secondary metallurgy process databases** enables Affival to determine the best conditions for metallurgical treatment while taking into account the unique problems each customer faces. This in-depth analysis is completed through on-site process monitoring by the Affival team.

## **Injection conditions are an essential consideration in monitoring a plant's treatment process.**

Affival employs dedicated in-house simulation software that was developed as part of a Ph.D. thesis on Ca treatment. These studies have shown the significant improvement is possible by optimizing the feeding of cored wire into the steel bath and fine-tuning the releasing depth of active elements into the ladle.

Affival **HDx™** calcium cored wires provide metallurgical assistance in reaching a better understanding of the Ca treatment performance. This knowledge leads to cost-savings (reduced wire consumption), safety improvements (Ca reactivity), and stability (reduction of clogging risks and a more stable process).

Using thermodynamic simulation software, we can estimate the fraction of the liquid phase in inclusions at casting temperature to predict steel castability, as well as the effect of Ca content or temperature shift on micro-inclusions chemical composition.

**Automatic SEM/EDS analysis of micro-inclusions populations in steel** can check the efficiency of Ca treatment (chemical reaction between Ca and inclusions) while taking into account the customer's secondary metallurgy process. Affival can also analyze end-product samples upon request.

Affival's innovative tools helps analyze nonmetallic-inclusion populations in terms of number, size, chemical compositions of inclusion phases, and spatial distribution of inclusions.

We deliver results in many formats (comparison of number and size of inclusions, ternary diagrams, standard methods) in a full evaluation report.